On the Influence of Plasticity of Rubber on the Technological Properties of Synthetic Latexes. SOV/138-58-4-2/13

and modified the methods of production by taking their hypothesis into account. Investigations are carried out at present, in conjunction with the NII Tyre Industry, on the influence of the plasticity of the polymer on its adhesive properties. The plasticity of a polymer also influences the process of manufacture of rubber goods by ion - precipitation. In particular, in chloroprene latex the molecular characteristics of a polymer influence considerably the rate of ageing of these latexes and the quality of the rubber articles. The influence of the plasticity of the rubber contained in the latex on the use and properties of manufactured goods requires further investigation. Laboratories should evolve more standards and more universal methods of defining the plasticity of the polymer in the latex. There are 5 References: 1 English and 4 Soviet.

ASSOCIATION: All-Union Research Institute for Synthetic Rubber im. Academician S. V. Lebedev (Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. akad. S. V. Lebedeva).

Card 3/3 1. Synthetic rubber--Properties 2. Rubber--Plasticity

SOV/138-58-5-2/9

AUTHORS: Lebedev, A.V.,
Fermor, N.A.,
Mints, S.M.,
Zakharchenko, P.I.,

TITLE: The Vulcanisation of Synthetic Latexes (Vulkanizatsiya sinteticheskikh lateksov)

PERIODICAL: Kauchuk i Rezina, 1958, Nr 5, pp 3-9 (USSR)

ABSTRACT: The method and conditions for the sulphur-vulcanisation of some synthetic latexes were investigated, as well as the characteristics of laminae prepared from the same. The latexes were vulcanised by intensive gamma radiation without using chemical vulcanisation agents. It was found that the strength of laminae made from these latexes depends on the polarity of the rubber. The latexes tested included 1,3-butadiene-styrene rubbers SKS-30A, SKS-50PG and also the 1,3-butadiene-nitrile rubber SKN-40; the composition and conditions of polymerisation are given in Table 1. Experiments on radiation vulcanisation were carried out in the Physico-Chemical Institute im. L.Ya.Karpov by using Co^{60} as a source of radiation with an activity of

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The Vulcanisation of Synthetic Latexes

600, 1400 and 20,000 Curie. The samples were placed in 15 - 35 ml glass ampuls and subjected to radiation (intensity = 0.14 - 1.3 mil.roentgen units/hour). No coagulation of the latex could be observed. Laminae were prepared from the vulcanised latex by using aqueous fixing agents. Comparative tests were carried out under identical conditions with laminae prepared from latexes containing vulcanisation agents. The physical and mechanical characteristics of these laminae were determined. The degree of vulcanisation was evaluated as well as their solubility. Benzene was used as solvent and swelling agent for 1,3-butadiene-styrene rubbers and for "Revul'teks" (Revultex obtained from Revertex Limited) and acetone for 1,3-butadiene-nitrile rubber. The laminae were treated with methyl alcohol, saturated with phenyl-B-naphthylamine to extract the admixtures. The physical and mechanical properties of the laminae are listed in Table 2 and for comparative properties

The Vulcanisation of Synthetic Latexes

data is included on vulcanised laminae made of non-vulcanised latexes and also of a sample of "Revul'teks". The mechanism of formation of laminae from vulcanised latexes was investigated: the strength of dry laminae from latexes vulcanised with sulphur appears to be the result of the cumulative action of Van der Waals forces and of chemical bonds between the globules. Table 4: data on the strength of the laminae (in%) at varying degrees of humidity. Changes in the physical and mechanical properties and the solubility of the laminae from vulcanised latexes after 8 - 10 months of storing were investigated; results of these investigations (Tables 5 and 6) show that the ageing of polymers in latexes proceeds with greater intensity than in the laminae when Vulkatsit-R-extra-N is used. The properties of the laminae made from latexes vulcanised when applying varying amounts of gamma

radiation (Tables 7 and 8) are discussed. There are 8 tables, 1 figure and 23 references of which 15 are English, 1 French, 1 German, 1 Japanese, 1 Dutch and 4 Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im.S.V.Lebedeva (The All-Union Scientific-Research Institute for Synthetic Rubber imeni. S.V. Lebedev)

AUTHORS: Lebedev, A.V., Fermor, N.A., Selivanovskiy, S.A., and Beresnev, V.N. SOV/138-58-7-1/19

TITLE: Some Technical Properties of Chloroprene Latexes Depending on the Size of Particles and the Saturation of the Adsorption Coatings (Nekotoryye tekhnologicheskiye svoystva khloroprenovykh lateksov v zavisimosti ot velichiny chastits i nasyshchennosti adsorbtsionnykh obolochek)

PERIODICAL: Kauchuk i rezina, 1958, Nr 7, pp 1 - 5 (USSR)

ABSTRACT: The rate of ionic deposition, the rate of syneresis in water, the rate of drying and setting of coatings and physico-mechanical properties of the gel of chloroprene latexes having particles of various sizes, were investigated. To some latex samples soap was added in order to compare the properties of latexes: a) at an equal degree of saturation of the globules of the coating and b) at an identical weight ratio of the emulsifier to the polymer. Polymerisation was carried out in a 50-litre apparatus at 25 - 30 °C (Table 1). Initiators and emulsifiers usually used during the synthesis of chloroprene latexes were used (Refs 14 and 15). The size of the particles and the degree of saturation was determined by

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adsorption titration of the latexes with solutions of sodium oleate and resin soap (Refs 9 and 10). The physico-mechanical properties of the raw gel were defined with a Kublanov dynamometer (Ref 12) and the physico-mechanical properties of dry vulcanised coatings with a Shopper dynamometer according to the VNIISK methods (Ref 11). Heat ageing of the latexes was effected in an air thermostat for 36 hours at 70 °C. An analysis of data given in Table 2 and Figures 1-3 shows that the rate of ionic deposition in the initial period (within the limits of experimental error) is equal for all tested samples; in the following period it is higher for latexes with large particles. The weight ratio of the raw and dry gel for all samples and in all stages of ionic deposition remains approximately constant (about 2.2). The average rate of ionic deposition increases with increasing degree of saturation of the globules with emulsifiers. If the latex contains very small particles and the globules are less saturated with emulsifiers, syneresis of the gel proceeds more quickly and more completely in the aqueous

medium (Table 3). From simple calculations, it can be established that within the limits of investigated sizes of particles and of degree of saturation, the rate of syneresis and its extent are approximately proportional to the specific exposed surface of the polymer particles; the proportional coefficient is considerably higher for latexes stabilised with rosin soaps. When infra-red irradiation is applied the rate of drying of latex coatings is higher if large-particle latexes are used. However, the rate of separation of moisture decreases with increasing degree of saturation of the adsorption layers with emulsifiers. The amount of deposits and the reduction coefficient increase slightly during drying when the sizes of the particles and the degree of saturation of the adsorption layers increase. The specific elongation of gels from large-particle latexes is in all cases lower than the corresponding values for highly dispersed latexes. It decreases with increasing degree of saturation of the adsorption layers with the polymer globules.

 The physico-mechanical values of vulcanised layers decrease

SOV/138-58-7-1/19

Some Technical Properties of Chloroprene Latexes Depending on the Size of Particles and the Saturation of the Adsorption Coatings

with increasing soap content in the polymers; at equal soap content they do not (within the limits of experimental error) depend on the sizes of the particles in the latex. The raw gel, as well as the vulcanised layers from latexes, stabilised with sodium resinate, have better physico-mechanical properties than the corresponding gels and coatings stabilised with sodium oleate. This is due to the different solubilities of calcium salts of rosin and oleic acids in chloroprene. There are 3 figures, 3 tables and 15 references, 5 of which are Soviet, 7 English and 3 German.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva (All-Union Research Institute for Synthetic Rubber im. S.V. Lebedev)

Card4/4 1. Chloroprenes--Polymerization 2. Chloroprenes--Physical properties 3. Chloroprenes--Mechanical properties 4. Chloroprenes --Test results 5. Synthetic rubber--Preparation

S/727/61/000/000/001/009
I031/I242

AUTHOR: Lebedev, A.V.

TITLE: Manufacture of synthetic latex in the USSR and its future development

SOURCE: Sintez latcksov i ikh primeneniye. Ed. by A.V. Lebedev, A.B. Peyzner, and M.A. Fermor. Leningrad, Goskhimizdat, 1961, 7-20

TEXT: Large-scale production of synthetic latex was launched in the USSR in 1936-37. A chloroprene latex and a butadrene-base latex were two sole products manufactured until the outbreak of World War II. Since 1951, butadrene-piperylene, butadrene-vinylidene chloride and butadrene-styrene have been produced. Butadrene-styrene (70:30), butadrene-methacrylic acid (100:2, butadrene-methylvinylpyridine (90:10), have good adhesive properties and are intended for the tire industry. Vniisk developed two types of latex for the foam rubber industry: СКС-50ПГ (SKS-50PG), a heat-polymerized butadrene-styrene

(Card 1/2)

S/727/61/000/000/001/008
I031/I242

Manufacture of synthetic latex...

(50:50), and SKN-40P (SKN-40?), an odorless petroleum-base, oil-resistant, butadrene-acrylic nitrile (60:40). Long-chain latexes of different types have been developed for various purposes. The seven-year development plan (1959-1965) provides for a ninefold increase as compared with the 1959 output. Special attention should be paid to the problem of distillation of excess monomers. Latex technology in the USSR lags behind that of the industrial foreign countries. US references were frequently consulted while designing the Soviet plants. There are 2 figures and 2 tables.

ASSOCIATION: VNIISK

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S/727/61/000/000/002/009
I031/I242

AUTHORS: Peyzner, A.B., Lebedev, A.V., Fermor, N.A., Skvirskaya, Yo.P., Korotkova, A.A., Berlin, R.L., Taranenko, S.V.

TITLE: Synthesis of latex for foam rubber manufacture

SOURCE: Sintez lateksov i ikh primeneniye. Ed. by A.V. Lebedev, A.B. Peyzner, and N.A. Fermor, Leningrad, Goskhimizdat, 1961, 21-40

TEXT: The purpose of this work was the development of the manufacture of foam rubber from synthetic latexes produced in the USSR. The initial experiments were performed with СКС-30У (SKS-30U) and chloroprene latexes subsequently, new experimental latexes were synthesized: chloroprene-butadrene and chloroprene-isoprene; butadrene-styrene latexes СКС-30А (SKS-30A), СКС-30 (SKS-30), СКС-50 (SKS-50) with Nekal and СКС-50 (SKS-50) with ammonium paraffinate. German Buna S-3 and Buna-SS-Special (butadrene-styrene 50:50) were also investigated. The results were unsatisfactory with the excep-

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S/727/61/000/000/002/009
I031/I242

Synthesis of latex for...

tion of SKS-50 latex of modified mix, and the detailed study was narrowed to this material only. Factors like full saturation of particles film, increased pH of the solution, increased concentration of solids, and low foaming temperature, improve the foaming ability of a latex. Foam stability in the SKS-50 latex was achieved by an increase in soap content up to 10% of weight of solids. Optimum plasticity depends on the nature of polymer, on condition of polymerization, on mix composition and on technology of the process. A relation exists between the rate of polymerization and the solids content of the latex. The smaller the size of particles, the higher the rate of polymerization. On the other hand, the small-particle latex, due to its higher viscosity thickness at a lower solids content. The SKS-50 latex was stabilized with potassium paraffinate which reduced the surface tension to 45-48 dynes/cm. The possibility of substituting α-methylstyrene for styrene in a butadiene-styrene polymer was studied. The polimerization

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Synthesis of latex for...

rate was slowed down by 20-25%. The foam rubber obtained complies with specifications, except for its odor. A butadiene-nitrite latex with paraffine soap proved to be resistant to the action of benzene and gave an odorless foam rubber of good quality. There are 7 figures and 10 tables.

ASSOCIATION: VNIISK, NIIR, RTI Leningrad plant

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S/727/61/000/000/004/009
I031/I242

AUTHORS: Fermor, N.A., Lebedev, A.V., Peyzner, A.B., Mints, S.M.

TITLE: Aging of chloroprene latex Nairit P-4 (L-4)

SOURCE: Sintez latekscv i ikh primeneniye. Ed. by A.V. Lebedev, A.B. Peyzner, and N.A. Fermor. Leningrad, Goskhimizdat, 1961, 144-162

TEXT: Two methods have been employed for the investigation: determination of % rejects at various stages of film-envelope production by the ion-precipitation method and determination of elongation of a gel obtained by ion-precipitation. Both, the natural life aging test and accelerated test were carried out. It was found that gel properties which have a bearing on the behaviour of a P-4 (L-4) latex during ion-precipitation-production of film, depend on the extent of polymerization, the size of polymer particles, the pH of the latex, and the amount of emulsifying agent. The technical properties of a latex deteriorated on aging. The aging causes the

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S/727/61/000/000/004/009
I031/I242

Aging of chloroprene latex...

detachment of chlorine from the polymer, hence a decrease in pH, branching of the polymer chain, further polymerization of chloroprene, gradual conglomeration of the globules, an increase in viscosity, a decrease in surface tension of the latex and a reduction in the content of the anti-aging agent. An increase in temperature hastens the aging process, the maximum effect being obtained between 20 and 70°C. Stability of latex and its aging behaviour depend on the concentration of initial latex, the extent of polymerization, presence of free chloroprene, peroxides, and ammonium, the temperature of polymerization, and the nature of the "anti-knocking" regulator. An experimental polymerization in dilute solution at a low pH and temperature, without emulgator, and with a smaller amount of peroxide catalyst, yielded the modified L-4 latex with better properties and high stability. There are 24 tables. The most important English-language reference is D.E. Anderson, P. Covacic, Ind.Eng.Chem. 47, 171 (1955).

ASSOCIATION: VNIISK

Card 2/2

LEBEDEV, A.V., red.; PEYZNER, A.B., red.; FERMOR, N.A., red.; SHUR, Ye.I., red.; FOMKINA, T.A., tekhn. red.

[Synthesis of latexes and their uses] Sintez lateksov i ikh primenenie. Pod red. A.V.Lebedeva, A.B.Peiznera, N.A.Fermora. Leningrad, Gos. nauchno-tekhn.izd-vo khim. lit-ry, 1961. 367 p. (MIRA 15:2)

1. Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka. 2. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. aksd. S.V. Lebedeva, Leningrad (for Lebedev, Fermor).
(Rubber, Synthetic)

PEYZNER, A.B.; LEBEDEV, A.V.; FERMOR, N.A.; ROZENGARDT, Ye.V.; ZHEBROVSKIY, V.V.; LIVSHITS, Kh.M.; DRINBERG, A.Ya. [deceased]; KOBETSKAYA, V.M.; USITINOVA, O.N.

Synthesis of styrene-butadiene latexes and the production of paints derived from them. Lakokras.mat. i ikh prim. no.2:7-12 '61. (MIRA 14:4)

(Paint) (Butadiene)

KUZNETSOV, V.L.; LEBEDEV, A.V.

Effect of the amount of emulsifying agents on the viscosity of butadiene-styrene latexes. Kauch.i rez. 21 no.1:16-19 Ja '62. (MIRA 15:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V.Lebedeva.

(Emulsifying agents) (Rubber, Synthetic)
(Butadiene)

S/069/62/024/005/005/010
B106/B186

AUTHORS: Lebedev, A. V., Mints, S. M., Rakhlin, P. I., Zinov'yeva, M. N.

TITLE: Effect of various factors on the low-temperature strength of synthetic latexes. 1. Effect of changes in the aqueous phase

PERIODICAL: Kolloidnyy zhurnal, v. 24, no. 5, 1962, 565 - 571

TEXT: This paper is the first in a series of systematic studies on the freezing strength of rubber-like polymeric latexes such as СКС-30П (SKS-30P) and СКС-65ГП (SKS-65GP) as dependent on the compounding formula, polymerization conditions, and other factors. A quantitative method was worked out for determining the resistance of divinyl styrene latex to low temperatures. The percent content of dry coagulate in the latex polymer serves as a measure of resistance. Experiments with variation of single factors at otherwise equal conditions gave the following results: The frost resistance of latex depends on the nature of the cations and anions of the emulsifier; it decreases in the order of the cations $K^+ > Na^+ > NH_4^+$ and in the order of the anions paraffinate > Nekal > Dresinate (salt of disproportionate colophony). With addition of emulsifiers to the finished

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latex, its frost resistance increases monotonously with the amount of emulsifier used in potassium and ammonium soaps, whereas it passes a maximum in the case of Nekal and sodium Dresinate (with 50-60% saturation of the adsorption layers). With the use of soaps of different molecular weights as emulsifiers, the frost resistance of latex decreases with the molecular weight increasing from 190 to 300. Additions of small amounts of univalent metal salts or of Leukanol to the aqueous phase slightly improve the frost resistance of latex; the effect of additions of non-ionic emulsifiers depends on the nature of the latex polymer and on the hydrophile-lipophile balance in the emulsifier. The frost resistance of latex is independent of its concentration, and increases with the pH of the aqueous phase. High resistance to frost is reached by introduction of ammonia, which facilitates transport and storage in winter. There are 4 figures and 5 tables. The most important English-language references are: H. W. Walker, J. Phys. Coll. Chem. 51, 451, 1947; R. J. Orr, Rubb. Plast Age 41, 1027, 1960; T. E. Daniels, W. H. Watson, F. C. White, Rubber and Plast. Age 40, 1057, 1959.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev)

Effect of various factors on...

S/069/62/024/005/005/010
B106/B186

SUBMITTED: June 15, 1961

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15.9130

41405

S/069/62/024/005/006/010
B106/B186

AUTHORS: Lebedev, A. V., Mints, S. M., Rakhlin, P. I., Zinov'yeva, M. N.

TITLE: Effect of various factors on the low-temperature strength of synthetic latexes. 2. Effect of changes in the polymeric phase

PERIODICAL: Kolloidnyy zhurnal, v. 24, no. 5, 1962, 572 - 577

TEXT: The effect of the composition of the polymeric phase, of the plasticity of the polymer, and of changes of the polymer during storage on the low-temperature strength of synthetic latex was studied. The decrease in frost resistance ("aging") of latex on long-storage can be delayed considerably by excluding oxygen or by adding antioxidants. A styrene content of more than 60% in the polymerization mixture of the monomers reduces the frost resistance of divinyl styrene latex. It was shown by the example of divinyl nitrile latex that latex produced with soaps of the molecular weight 190 as emulsifiers was, under otherwise equal conditions, more resistant to frost than latex produced with Nekal. Divinyl nitrile latex is much less frost-resistant than divinyl styrene

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latex, and ages considerably when stored. Changes in plasticity of divinyl styrene latex practically do not affect the frost resistance. The results are used for proposing an appropriate coagulation mechanism for the freezing and thawing of latex. Some industrial processes are recommended for increasing the frost resistance of latex: CKC-50H (SKS-50N) latex can be made frost-resistant to -100C by introducing ammonia up to pH > 10. The frost resistance of divinyl styrene latex for dyes can be improved by reducing the styrene content in the monomer mixture from 65% to 55-60%, by increasing the amount of soda lye to 0.37-0.42 parts by weight of the monomers, and by adding antioxidants to the latex. There are 4 figures and 1 table. The English-language references are: H. W. Walker, J. Phys. Colloid. Chem. 51, 451, 1947; T. G. Rochow, C. W. Mason, Industr. and Engng. Chem. 28, 1296, 1936; E. Crampsy, M. Gordon, J. Taylor, J. Chem. Soc. 12, 3925, 1953.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev)

SUBMITTED: June 15, 1961

KUZNETSOV, V.L.; LEBEDEV, A.V.

Effect of the nature of the cation of fatty acid soaps on the viscosity of butadiene-styrene latexes and the parameters of the adsorption layers. Kauch. i rez. 22 no.7:7-9 Jl '63.

(MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva.

(Rubber, Synthetic) (Emulsifying agents)

L 44681-66 EWT(1)
ACC NR: AP6005396

SOURCE CODE: UR/0413/66/000/001/0151/0152

AUTHORS: Lebedev, A. V.; Tolchinskiy, Ye. M.

ORG: none

TITLE: Null unit, Class 21, No. 165497

28
B

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 151-152

TOPIC TAGS: transistorized oscillator, dc amplifier

ABSTRACT: This Author Certificate presents a null unit containing an oscillator with a nonlinear controlled element connected in the feedback circuit. To increase the sensitivity, a differential amplifier and an oscillator with positive uncontrolled feedback and a controlled transistor are used. The collector circuit of the transistor is connected in the negative feedback loop, and the base circuit is connected to the output of the differential amplifier. To eliminate overloading of the null unit with an increase of the compared input signals, two transformers are used. The primary of one transformer is connected in the collector circuit of the transistor oscillator. The secondary is connected in the collector circuit of the controlled transistor of the negative feedback loop and in a constant resistance circuit forming the positive feedback loop. The primary of the second transformer is connected in the sum circuit of the positive and negative feedback signals, and the secondary is connected to the base of the oscillator transistor.

SUB CODE: 09/ SUBM DATE: 19Nov62

UDC: 621.3.317.078

Card 1/1 hs

LEBEDEV, A.V.; MINTS, S.M.; FERMOR, N.A.

Agregate stability of synthetic latexes to the attack of various actions. Kauch. i rez. 22 no.11:14-19 N '63. (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V.Lebedeva.

ACCESSION NR: AP4026368

S/0138/64/000/003/0030/0033

AUTHORS: Kuznetsov, V. L.; Lebedev, A. V.

TITLE: Effect of hydrocarbon chain length in fatty acid soaps on the parameters of interphase layers in butadiene-styrene latexes

SOURCE: Kauchuk i rezina, 23 no. 3, 1964, 30-33

TOPIC TAGS: rubber, butadiene-styrene rubber, latex, emulsifier, soap, potassium laurate, potassium myristate, potassium palmitate, potassium stearate, hydrocarbon chain length, viscosity, interphase layer, soap-water layer, hydration

ABSTRACT: The investigation was conducted on SKS-50 butadiene-styrene latexes synthesized by a standard procedure in the presence of potassium soaps of lauric, myristic, palmitic, and stearic acids as emulsifiers. The latexes were further treated with the corresponding soap to the saturation point, which brought the pH to a 9.1-9.3 value. It was found that the viscosities of the latexes increased with an increase in the length of the hydrocarbon chain of the fatty acid. Calculations by a method described in an earlier publication by the authors (Kauchuk i rezina. No. 1, 16, 1962) revealed that the thickness of the coating of the

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ACCESSION NR: AP4026368

latex particles varied from 3.2 to 4.7 millimicrons, increasing with the length of the carbon chain of the emulsifier, while the degree of hydration of the adsorbed soap showed a reverse trend. Tests conducted with soaps from domestic-mixed synthetic fatty acids of a C_{10}-C_{16} carbon chain length showed that the thickness of the adsorbed aqueous soap layer depended solely on the average carbon chain length of the mixture, irrespective of its original constituents. The stability of latexes emulsified by means of mixed soaps of a certain median carbon chain length towards freezing at -12 and -30C was superior to that of samples emulsified by a single soap of an identical carbon chain length. It was also found that the resistance of latexes to freezing decreased with increased length of the carbon chain of the corresponding fatty acid. Orig. art. has: 5 tables and 1 chart.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber)

SUBMITTED: 00 DATE ACQ: 17Apr64 ENCL: 00

SUB CODE: CH NO REF SOV: 004 OTHER: 003

KHAZANOVICH, I.G.; FERMOR, N.A.; PEYZNER, A.B.; LEBEDEV, A.V.; YEZRIYELEV, A.I.

Synthetic latexes containing nitrile groups in the copolymer, and their adhesive properties. Kauch. i rez. 23 no.6:9-13 Je '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V. Lebedeva.

ACCESSION NR: AP4041457 S/0138/64/000/006/0009/0013

AUTHOR: Khazanovich, I. G., Fermor, N. A., Peyzner, A. B., Lebedev, A. V., Yezriyelev, A. I.

TITLE: Latexes containing nitrile groups in the copolymer and their adhesive properties

SOURCE: Kauchuk i rezina, no. 6, 1964, 9-13

TOPIC TAGS: latex, synthetic rubber, tire cord, butadiene-nitrile, latex SKN-5, adhesive property, latex polymerization, acrylonitrile latex, latex structure

ABSTRACT: Since the Na-dibutylnaphthalenesulfonate which is commonly used as an emulsifying agent in butadiene-nitrile rubber has an adverse effect on the adhesive properties of latexes, and since the poor adhesive properties of the latexes SKN-40, SKN-26 and SKN-18 may be due to the extremely high content of polar groups, the authors investigated the adhesive properties (in the impregnation of tire cord) of butadiene-nitrile latexes prepared at 5, 30 or 50C with a butadiene: acrylic acid nitrile ratio varying from 60:40 to 97:3 and using the K scaps of synthetic fatty acids which are also used as emulsifying agents in the preparation of latex SKS-30 ShKhP. Studies showed that the polymerization rate

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ACCESSION NR: AP4041457

increases with the nitrile content. The best adhesive properties were obtained with 5-7 parts nitrile, especially at 5C; the latex SKN-5 prepared at 5C was therefore investigated further. Since lack of homogeneity in the latex may have a favorable effect on the adhesive properties, the following formula was developed for calculating the integral and differential composition of the copolymer and the degree of conversion of the monomers in relation to the overall degree of polymerization during the preparation of latex SKN-5:

$$\ln\frac{m_2}{(M_2)_0}=\frac{1}{0{,}48}\ln\frac{1-0{,}48y_0}{1-0{,}48y} \qquad (1)$$

$$\frac{M_2}{(M_2)_0}=\left(\frac{0{,}48y_0-1}{0{,}48y-1}\right)^{2{,}08}$$

where $(M_2)_0$ is the number of mols of nitrile before polymerization, y_0 is the ratio of the molecular concentrations of butadiene and nitrile before polymerization, and M_2 and y represent the corresponding values at any other given degree of polymerization. Experiments showed that this structural heterogeneity can best be achieved by adding the nitrile in batches during polymerization, so that addition of the nitrile in 5 aliquots, for example, leads to better adhesive properties even though the content of bound nitrile in the copolymer is decreased. Orig. art. has: 4 formulas, 3 figures and 3 tables.

ACCESSION NR: AP4041457

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute for Synthetic Rubber)

SUBMITTED: 00 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 002 OTHER: 002

Card 3/3

L 54676-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP5017444 UR/0138/64/000/011/0025/0028

AUTHOR: Kuznetsov, V. L.; Lebedev, A. V.; Matusova, I. I.; Khodosh, L. N. 24 23

TITLE: Viscosity, parameters of interphase layers, and stability of butadiene-styrene latexes with various emulsifiers 15 15

SOURCE: Kauchuk i rezina, no. 11, 1964, 25-28

TOPIC TAGS: polymer physical chemistry, rubber, butadiene, polystyrene, colloid chemistry

ABSTRACT: On the basis of rheological data obtained on SKS-50 latexes stabilized with the K^+, Na^+, and Li^+ salts of "disproportioned colofonium" (an acid containing condensed aromatic rings) (I), di-sec-butyl-naphthalene sulfonic acid (II), and lauric acid (III), it was established that the effective thickness of protective layers and the apparent degree of hydration of the emulsifier depended on the cation and increased in the order $K^+ < Na^+ < Li^+$. The effect of the cation was more pronounced for the weak

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L 54676-65

ACCESSION NR: AP5017444

acids I and III than for the strong acid II. The stability of the latexes to mechanical effects increased with decreasing hydration of the emulsifiers, i.e., in the sequence $Li^+ < Na^+ < K^+$. Addition of KCl to latexes stabilized with K salts of I, II, and III reduced hydration of the emulsifiers and increased the stability of the latexes to mechanical effects.
Orig. art. has: 3 formulas, 2 graphs, 4 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S. V. Lebedeva (All-Union Scientific Research Institute of Synthetic Rubber)

SUBMITTED: 00 ENCL: 00 SUB CODE: MT, GC

NR REF SOV: 006 OTHER: 004 JPRS

Card 2/2

GENKIN, V.M.; LEBEDEV, A.V.; SHCHERBAKOV, V.N.

Cooling of a sharp-focused X-ray tube with ungrounded anode. Zav. lab. 30 no.10:1285 '64. (MIRA 18:4)

1. Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut.

RAKHLIN, P.I.; LEBEDEV, A.V.

Effect of various factors on the resistance of synthetic latexes to low temperatures. Part 3: Effect of plasticization of latex particles on the frost resistance of SKS-65GP latex. Koll. zhur. 27 no.4:598-600 Jl-Ag '65. (MIRA 18:12)

1. Nauchno-issledovatel'skiy institut sinteticheskogo kauchuka imeni S.V. Lebedeva, Leningrad. Submitted March 24, 1964.

KUZNETSOV, V.L.; LEBEDEV, A.V.; MATUSOVA, I.I.; KHODOSH, L.N.

Viscosity, parameters of interphase layers and stability of butadiene styrene latexes treated with various emulsifiers. Kauch.i rez. 23 no.11:25 N '64. (MIRA 18:4

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo kauchuka im. S.V.Lebedeva.

LEBEDEV, A. V.

Dissertation: -- "Concerning Some Aspects of Pseudo-conformable Representations." Cand Phys-Math Sci, Moscow Oblast Pedagogical Inst, 15 Jun 54. (Vechernyaya Moskva, Moscow, 4 Jun 54)

SO: Sum 318, 23 Dec. 1954

LEBEDEV, A.V. (Aleksandr Vasil'yevich)

SUBJECT USSR/MATHEMATICS/Applied mathematics CARD 1/1 PG - 718
AUTHOR LEBEDEV A.V., FEODOROVA R.M.
TITLE Handbook of mathematical tables.
PERIODICAL Moscow: Publication of the Academy of Sciences of the USSR
550 p. (1956)
reviewed 4/1957

The present book has the aim to comprehend all mathematical tables which have been published in periodicals or books until 1953. However, tables of number theory, mathematical statistics, astronomy and geodesy are not considered. From the titles of the 15 chapters we mention some essential domains: powers; trigonometric functions; exponential- and hyperbolic functions; logarithms; factorials and Euler integrals; exponential integral and integral logarithm; probability integrals; elliptic integrals and functions; Legendre polynomials and functions; cylindrical functions; special functions and integrals; solutions of certain equations; magnitudes and sums appearing by the calculation with differences; mathematical constants; prime numbers and factorization.
This book is not complete for all domains of mathematics but, compared with other books containing tables, it has reached the aim of completeness much more.

LEBEDEV, A.V.

Generalization of one sufficient condition for univalence of a function analytic in a convex domain. Uch. zap. MOPI 39 no.3: 23-26 '56. (MLRA 10:4)

(Conformal mapping)

LEBEDEV, Aleksandr Vasil'yevich

A guide to mathematical tables, by A.V. Lebedev and R.M. Fedorova. New York, London, Pergamon Press, 1960.

xlvi, 504 p.

Translated from the original Russian: Spravochnik po matematicheskim tablitsam, Moscow, 1956.

References: p. 511-526.

LEBEDEV, A.V., assist.

Analyzing multiplex circuits. Trudy MEI no.13:202-215 '53.
(MIRA 11:4)

1. Moskovskiy energeticheskiy institut im. V.M. Molotova, Kafedra avtomatiki i telemekhaniki.
(Electronic circuits) (Telemetering)

LEBEDEV, A. V.

LEBEDEV, A. V.

"An Analysis of a Bridge Circuit With Dynamic Compensation," pp 189-194, ill, 4 ref

Abst: A bridge circuit with dynamic compensation and a current-consuming null-unit is analyzed. It is pointed out that the application of the method of dynamic compensation opens up new possibilities in building new systems of telemetering and automatic control, possessing a high degree of precision and good distance characteristics.

SOURCE: Trudy Moskovskogo Energeticheskogo In-ta im. V. M. Molotova MVO SSSR (Works of the Moscow Energetics Institute imeni, V. M. Molotov of the Ministry of Higher Education USSR), No 18, Electric Vacuum Technology and Instrument Building, Moscow-Leningrad, Gosenergoizdat, 1956

Sum 1854

LEBEDEV, A.V., inzhener.

Errors in decoding data obtained by dot-dash recording. Priboro-stroenie no.9:14-15 S '57. (MIRA 10:10)
(Measuring instruments) (Electromechanical analogies)

KRUG, G.K., dotsent; BALTRUSHEVICH, A.V., assistent, retsenzent, red.; GOL'DFARB, L.S., prof., retsenzent; LEBEDEV, A.V., dotsent, retsenzent

[Calculations and designs of servomechanisms]Raschet i proektirovanie sledíashchikh sistem] Raschet i proektirovanie sledíashchikh sistem. Moskva, Mosk. ordena Lenina energ. in-t, 1958. 174 p. (MIRA 12:2)

(Servomechanisms)

AUTHOR: Lebedev, V. V.

TITLE: Potentiometer Circuits for Scanning or Follow Conversion (Potentsiometricheskaya skhema pri razvertyvayushchem i sledyashchem preobrazovanii)

PERIODICAL: Priborostroyeniye, 1958, Nr 9, pp. 16-18 (USSR)

ABSTRACT: Scanning conversion is a new compensating method by which a signal is obtained that can be used for teletransmission as well as for conversion of continuous data into digital coded form. In this paper both compensating methods, i.e., scanning conversion, and follow conversion, are compared. A certain part of scanning conversion is the method of dynamic compensation of voltages by P. Ye. Tomnikov. Scanning conversion was investigated in some papers (Ref. 5 - 7). Here the author first discusses a potentiometer circuit with scanning conversion. If in this case the potentiometer brush moves in a certain direction, the state of equilibrium, and the presence of the zero number at the output, will always be attained after a certain sequence of multiplications of the [illegible] circuit. Therefore the nonlinearity of conversion [illegible]

[illegible] shift, can be taken into consideration by using a [illegible] division for the instrument. Formulae (9), [illegible] approximate formula ([illegible]) valid for r ≫ [illegible] for the maximum nonlinearity of the conversion b_m, where r is the input resistance of the zero member, and [illegible] is the total [illegible] resistance. - The main difference between this [illegible] and the follow conversion type is that the latter has a [illegible] control circuit where equilibrium may be attained at different directions of the unbalance current. The servomotor must have a power margin for moving the potentiometer brush in the direction required. Formulae (14), and the approximate formula (15) for r ≫ [illegible], are derived for b_m. - The comparison of formulae (8) and (9) for scanning conversion with (14) and (15) for follow conversion shows that, under conditions equal in all other respect, the error is twice as high for follow conversion. Since during balancing of the circuit the state of balance is approached from two sides, equilibrium of the circuit may occur at any point within the insensibility

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zone. Therefore this kind of errors can not be taken into consideration by graduating the device. An increase of the amplification factor will reduce this error. However, an increase of the amplification factor of a servo-system implies a deterioration of stability conditions, thus requiring appropriate stabilization devices. None such difficulties are encountered with scanning conversion inasmuch as the system used is an open one.
There are 5 figures and 7 references, 6 of which are Soviet.

TEMNIKOV, Fedor Yevgen'yevich; KHARCHENKO, R.R., prof., doktor tekhn. nauk, retsenzent; LEBEDEV, A.V., kand.tekhn.nauk, red.; POLYAKOV, G.F., red.izd-va; EL'KIND, V.D., tekhn.red.

[Automatic recording instruments] Avtomaticheskie registriruiushchie pribory. Izd.2., perer. i dop. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 459 p. (MIRA 13:7)

(Recording instruments)

86650

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6,7800 (also 1067)

S/119/60/000/011/006/009
B012/B054

AUTHORS: Lebedev, A. V., Tolchinskiy, Ye. M., and Tyapkin, M. V.

TITLE: Electronic Measuring Device ДИУ-256/I (DIU-256/I) With Digital Output

PERIODICAL: Priborostroyeniye, 1960, No. 11, pp. 13 - 17

TEXT: The authors describe the electronic measuring device ДИУ-256/I (DIU-256/I). It serves for the automatic measurement of 256 parameters, but it can also measure a lower number (128, 64, or 32). In such cases, each transmitter is consulted 2, 4, or 8 times, respectively, during one series of measurements. One series of measurements of the 256 parameters is carried out in 1 second. The multichannel system of the device permits the use of several channels for the connection of calibration signals. The measurement results are printed on the record sheet in the form of three-place decimals. As there is no printing device available that is capable of printing 256 three-place numbers in one second, this apparatus uses a buffer memory with a magnetic drum. Printing of the 256 measured values takes about 25 seconds. An operator controls the device from a remote-

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Electronic Measuring Device ДИУ-256/I (DIU-256/I) S/119/60/000/011/006/009
With Digital Output B012/B054

control panel. Besides the printing device, a perforator may be used for the automatic feeding of data into the digital computer. Fig.1 shows the block diagram of the device. Its main characteristics are the grouping of transmitters of the same type, as well as the two-stage commutation, i.e. each group of transmitters may have a transmitter commutator, an amplifier, and a zero organ (nul'-organ) considering the characteristics of the respective transmitter group, and may use a calibration oscillator for various transmitter groups. The transmitters of the device are divided into four groups. Each group consists of 64 transmitters. The transformation of the continuous voltages into the code is based on a comparison of the measured voltage with the gradually increasing calibration voltage generated by the calibration oscillator by means of the zero organ, as well as on the counting of impulses traveling from the control block to the calibration oscillator. Among the four valves, only one is upon at a time. The alternating opening of valves is done by the electronic commutator of the second stage which, in turn, is controlled by the impulses coming from the valves. The transformation control block synchronizes the operation of the circuit during the transformation, controls the electronic commutator of the second stage and the calibration oscillator, and ensures the

Electronic Measuring Device ДИУ-256/I (DIU-256/I) S/119/60/000/011/006/009
With Digital Output B012/B054

recording of the code on the magnetic drum. Another control block selects the code on the magnetic drum. A third block controls the printing mechanism. Fig.3 shows the functional scheme of the commutator for the transmitters. It consists of various stages, and includes a decoder for four outputs, two decoders for 16 outputs, and an output matrix. Fig.4 shows the circuit diagram of the calibration oscillator and of the zero organ. The calibration oscillator consists of a binary counter with ten classes, and a transformer of the code to a proportional voltage. An experimental checking of the calibration oscillator showed that the drift of the stabilizer currents is at most 0.03% after 5 hours. A d.c.amplifier with automatic selection of the drift (between the two measurement series) is used to amplify the signals coming from the transmitters. Fig.5 shows the circuit diagram of a d.c.amplifier of the type УПТ-1 (UPT-1). Tests of the device showed an error of $\pm$0.1% in the transformation and recording at input voltages of 0-5 v. There are 6 figures and 3 Soviet references.

Card 3/7

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B012/B054

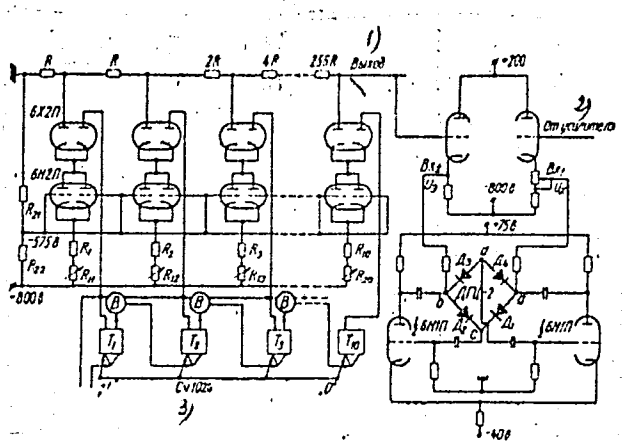

Рис. 4. Схема генератора эталонных напряжений и нуль-органа. Падение напряжения на сопротивлении R_{22} составляет 575 в.

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B012/B054

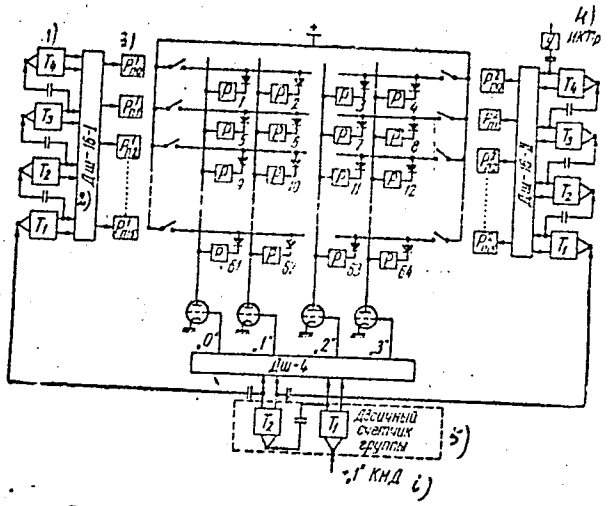

Рис. 3. Функциональная схема коммутатора датчиков.

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S/119/60/000/011/006/009
B012/B054

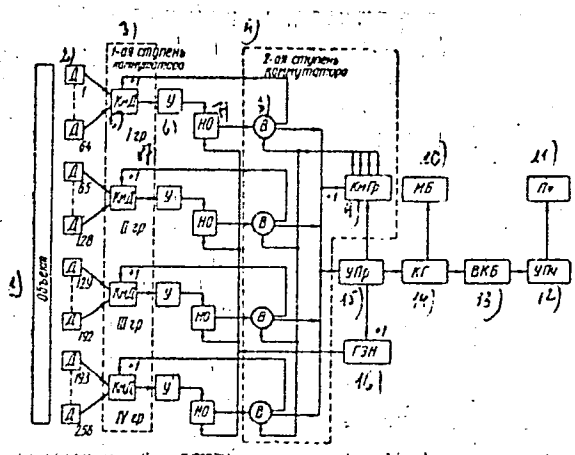

Рис. 1. Блок-схема ДИУ-256/1.

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Legend to Fig.1: Block diagram of DIU-256/I. 1) Object, 2) transmitter, 3) first commutator stage, 4) second commutator stage, 5) transmitter commutator, 6) amplifier, 7) zero organ, 8) valve, 9) electronic commutator of the 2nd stage, 10) magnetic drum, 11) printing mechanism, 12) printing control block, 13) control block for code selection, 14) commutator for the magnetic-drum heads, 15) transformation control block, 16) calibration oscillator, 17) group.

Legend to Fig.3: Functional scheme of the transmitter commutator. 1) Trigger, 2) decoder, 3) relay, 4) last trigger of the input counter of the decoder ДШ-16-II (Dsh-16-II), 5) binary counter of the group, 6) transmitter commutator.

Legend to Fig.4: Circuit diagram of the calibration oscillator and of the zero organ. Voltage drop on resistor R_{22} is 575 v. 1) Output, 2) from amplifier, 3) counter of calibration oscillator.

Legend to Fig.5: Circuit diagram of the d.c.measuring amplifier: Ком - kiloohms, пФ - picofarads, МКФ - microfarads, ОМ - ohms, Гц - cycles, Л - tube, В - volts 1) Relay, 2) vibrator, 3) reversing motor, 4) two-part panel for 20 pieces.

Card 7/7

GOLUBKOV, Yu.A.; KOROLEV, L.N.; LEBEDEV, A.V.

[Concerning the choice of a programming system for a computing and logic machine with a floating point] O vybore sistemy komand dlia trekhadresnoi vychislitel'noi i logicheskoi mashiny s plavaiushchei zapiatoi. Moskva, In-t tochnoi mekhaniki i vychislitel'noi tekhniki Akad. nauk SSSR, 1961. 40 p. (MIRA 14:8)
(Programming(Electronic computers))

GUZHAVIN, V.M.; KLIGER, G.K.; KOLGANOV, V.Z.; LEBEDEV, A.V.; MARISH, K.S.; MUSIN, M.A.; PROKOSHKIN, Yu.D.; SMOLYANKIN, V.T.; SOKOLOV, A.P.; SOROKO, L.M.; TSUY VA-CHUAN [Ts'ui Wa-ch'uang]

Elastic scattering of 650 Mev. protons. Zhur. eksp. i teor. fiz. 47 no.4:1228-1231 O '64. (MIRA 18:1)

1. Ob"yedinennyy institut yadernykh issledovaniy.

SORIN, Yakov Mikhaylovich; LEBEDEV, A.V., red.; SHIROKOVA, M.M., tekhn. red.

[Reliability of radio equipment] Nadezhnost' radioelektronnoi apparatury. Moskva, Gos. energ. izd-vo, 1961. 71 p. (Massovaia radiobiblioteka, no.406) (MIRA 14:12)
(Radio--Equipment and supplies)

LEBEDEV, Andrey Vasil'yevich; MEDVEDEVA, L.V., red.; SHIKIN, S.T., tekhn. red.

[Reliability and durability] Nadezhnost' i dolgovechnost'. Moskva, Izd-vo VTsSPS Profizdat, 1961. 62 p. (MIRA 14:12)
(Production control)

ALEKSANDROVSKIY, N.M., dots.; LEBEDEV, A.V., dots., red.

[Automatic control components; transducers, comparators, and relays] Elementy avtomaticheskikh ustroistv; ustroistva sravneniia, rele. Red. A.V.Lebedev. Moskva, Mosk. energ. in-t, 1962. 2 p. (MIRA 16:10)
(Automatic control)

GOLUBKOV, Yu.A.; LEBEDEV, A.V.

[Some methods for increasing the operating speed of electronic digital computers in the calculation of elementary functions] Nekotorye puti povysheniia skorosti vychisleniia elementarnykh funktsii na tsifrovykh elektronnykh vychislitel'nykh mashinakh. Moskva, ITM i VT AN SSSR, 1962. 62 p. (MIRA 15:8)
(Electronic digital computers) (Functions)

YEGER, Yekaterian Ivanovna; LEBEDEV, Aleksandr Vasil'yevich; LEVINA, Dina Lipovna; NOVIKOVA, S.N., red.; KAPRALOVA, A.A., tekhn. red.

[Principles of statistics; textbook for training accountants of industrial enterprises] Osnovy statistiki; uchebnoe posodlia podgotovki bukhgalterov promyshlennykh predpriiatii. Izd.2., perer. i dop. Moskva, Gosstatizdat, 1963. 223 p. (MIRA 17:1)

LEBEDEV, A.V.; TOLCHINSKIY, Ye.M.

Analysis of the measuring circuit of an analog-to-digital converter having a differential amplifier. Priborostroenie no.12:1-4 D'63. (MIRA 17:5)

ACC NR: AP6022203 SOURCE CODE: UR/0115/66/000/005/0050/0053

AUTHOR: Lebedev, A. V.; Tolchinskiy, Ye. M.

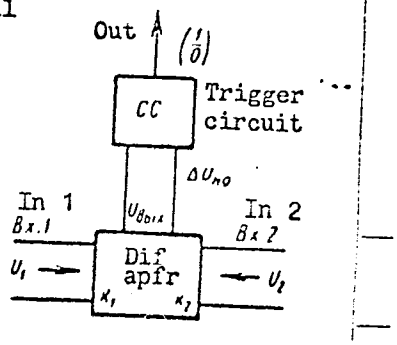
ORG: none

TITLE: Balance detector with differential amplifier

SOURCE: Izmeritel'naya tekhnika, no. 5, 1966, 50-53

TOPIC TAGS: balance detector, null detector, differential amplifier, electronic amplifier, electronic circuit

ABSTRACT: The balance (null) detector is considered whose output indicates which of two voltages being compared is higher. The detector circuit (see figure) with two isolated inputs has high cophasal-noise rejection and satisfactory stability. Based on recently published theory of differential systems ("Noise levels in measuring systems: a classification study." Strain gage reading , 1961, v. 4, no. 1), formulas are derived for detector errors caused by asymmetry and nonlinearity of the differential amplifier. Relations describing practical conditions of balance and symmetry are derived; they can be used in adjusting the measuring circuit. A possibility of drift (up to 100 μv in the case of transistorized amplifiers) should also be taken into account. Orig. art. has: 3 figures and 16 formulas.



SUB CODE: 09 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 002

Card 1/1 UDC: 621.317.726+621.375.1

ACC NR: AP6022084 SOURCE CODE: UR/0141/66/009/003/0608/0614

AUTHOR: Aptek, Yu. E.; Lebedev, A. V.

ORG: none

TITLE: Limits of technical feasibility in measuring oscillator phase (or frequency) fluctuation by SHF discriminators

SOURCE: IVUZ. Radiofizika, v. 9, no. 3, 1966, 608-612

TOPIC TAGS: SHF, frequency discriminator, SHF oscillator

ABSTRACT: A theoretical comparison of three known methods of oscillator-fluctuation measurement is presented with these conclusions: (1) The A. Whitwell and N. Williams circuit (Microwave J., Nov., p. 27, 1959) is the most sensitive of the circuits used for frequency discrimination; (2) The "contour" method and the delay-line method described by A. N. Malakhov et al. (IVUZ. Radiofizika,

Card 1/2 UDC: 621.317.373.023

ACC NR: AP6022084

no. 6, 1065, 1961) are useful in studying signals having wide phase fluctuation; (3) The M. S. Skabovskiy circuit (Rad. i elektronika, no. 9, 434, 1964) is suitable only for amplitude-fluctuation measurements; (4) Any frequency-discrimination circuit has an inherent limitation of its sensitivity due to losses associated with conversion of incoming phase fluctuation into measurable amplitude fluctuation. "In conclusion, the authors wish to thank V. N. Nikonov for his help and valuable hints." Orig. art. has: 4 figures and 13 formulas.

SUB CODE: 09 / SUBM DATE: 25Oct65 / ORIG REF: 005 / OTH REF: 001

Card 2/2

LEBEDEV, A.V.

Science of reliability is a base of standardization.
Standartizatsiia 29 no.7:26-28 Jl '65. (MIRA 18:11)

L 00986-66 EWT(l)/EWP(m)/EWA(d)/FCS(k)/EWA(l)

ACCESSION NR: AP5020559 UR/0294/65/003/004/0569/0576
532.517.4

AUTHOR: Lebedev, A. V.; Shvaykovskiy, Yu. V.

TITLE: Experimental investigation of the velocity fields and turbulent characteristics in a heat protective gas stream

SOURCE: Teplofizika vysokikh temperatur, v. 3, no. 4, 1965, 569-576

TOPIC TAGS: heat protective gas stream, turbulent mixing, concurrent gas stream

ABSTRACT: One method for preventing the walls of a combustion chamber from overheating is the injection of a jet of cold gas along the wall surface to separate the hot combustion gases from the wall. Experimental determination of the velocity fields in the gas jet protecting the wall was carried out to study the mechanism of the turbulent mixing of the gas jet with the main stream of the combustion gases. The time-average longitudinal velocity component u and the average absolute velocity pulsation $\overline{|u'|}$ were measured using the experimental unit described in Fig. 1 of Enclosure. Dependence of u, $\overline{|u'|}$, and

$$\overline{|u'|}/\left[\cdot\frac{du}{d(y/s)}\right]$$

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ACCESSION NR: AP5020559

on y/s and x/s, where s refers to the height of the slot for the injection of the jet of a cold gas, were measured for m = 0.253; 0.436; 0.629; 1.62; and 3.09; $m = \rho_1 u_{1av}/\rho_0 u_0$, where u_{1av} and u_0 are the average cross-section velocities in the slot and in the main gas stream before mixing, and ρ_1 and ρ_0 are the corresponding densities. The experimental results confirmed the validity of a previously proposed method for calculating the heat protective gas stream by using the equations of the turbulent boundary layer formed at a rigid wall (S. S. Kutateladze, A. I. Leont'yev. Teplofizika vysokikh temperatur, no. 2, 1963). Orig. art. has: 6 figures and 14 formulas.

[PS]

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Thermal Physics, Siberian Branch, Academy of Sciences, SSSR)

SUBMITTED: 15Apr64 ENCL: 01 SUB CODE: PR, ME

NO REF SOV: 008 OTHER: 001 ATD PRESS: 4068

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L 00986-66
ACCESSION NR: AP5020559

ENCLOSURE: 01

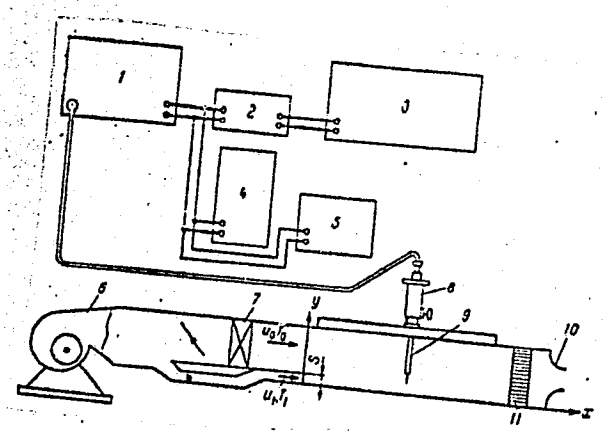

Fig. 1. Experimental setup for measuring gas stream velocities.

1 - ATA-1 thermoanemometer; 2 - coordinating amplifier; 3 - oscillograph 350-101; 4 - EO-7 oscillograph; 5 - average value voltmeter; 6 - fan; 7 - electric heater; 8 - traversing probe; 9 - data unit; 10 - nozzle; 11 - flow equalizing grid.

Card 3/3

GALEYEV, Akhmet Umerovich [deceased]; PERSHITS, Yuliy Isaakovich; MELAMED, D.A., inzh., retsenzent; LEBEDEV, A.V., inzh., retsenzent; SOBAKIN, V.V., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Fundamentals of mechanics for locomotive crews] Osnovy mekhaniki dlia lokomotivnykh brigad. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniia, 1961. 167 p. (MIRA 14:11)
(Mechanics) (Railroads)

LEBEDEV, Aleksandr Vasil'yevich; POZDNYAKOV, L.K., otv. red.

[Water retaining importance of forest in the Ob' and Yenisey basins] Vodokhrannoe znachenie lesa v basseinakh Obi i Eniseia. Moskva, Izd-vo "Nauka," 1964. 62 p. (MIRA 18:3)

YELISEYEVA, V.I.; LEBEDEV, A.V.; RAKHLIN, P.I.; CHUBAROVA, A.V.

New types of material for leather finishing. Kozh.-obuv.prom. 5 no.3: 18-21 Mr '63. (MIRA 16:3)
(Leather) (Finishes and finishing)

LEBEDEV, A.V.; POLETAYEV, V.A.; GOLIKOV, A.A.; NAGIRNYAK, F.I.

UMK-500 flotation machine. TSvet. met. 36 no.9:11-14 S '63.
(MIRA 16:10)

SORIN, Yakov Mikhaylovich; LEBEDEV, Andrey Vasil'yevich; KONOVALOV, G.M., red.; IVANOV, S.M., red.

[Talks on reliability] Besedy o nadezhnosti. Moskva, Izd-vo "Znanie," 1964. 222 p. (MIRA 17:6)

LEBEDEV, Andrey Vasil'yevich; MEDVEDEVA, L.V., red.

[New development in the drive for production quality; the Saratov system of organizing the manufacture of products without defects] Novoe v bor'be za kachestvo produktsii; o sisteme organizatsii bezdefektnogo izgotovleniia produktsii na saratovskikh predpriiatiiakh. Moskva, Profizdat, 1964. 77 p. (Bibliotechka profsoiuznogo aktivista, no.9/81) (MIRA 17:6)

LEBEDEV, A.Ye.

Mechanizing the harvesting of pulse crops. Zemledelie 25 no.7:56-58 Jl '63. (MIRA 16:9)

1. Nauchno-issledovatel'skiy institut sel'skogo khozyaystva Tsentral'no-chernozemnoy polosy imeni V.V.Dokuchayeva.
(Central Chernozem region—Legumes—Harvesting)

LEBEDEV Anatoliy Yakovlevich [Lebediev, A.IA.]; [illegible], Anna Vasil'yevna [Harvysh, H.V.]; KAL-NITSKIY, R.Ya. [Kal'nyts'kyi, R.IA.], red.

[The intercollective relations and [illegible]] Mitsnii [illegible] mizhkolhospni [illegible]. [illegible], [illegible] knyzhkove vyd-vo, 19[illegible]. [illegible] p. [illegible]

AUTHOR: Lebedev, A.E. (Engineer).

TITLE: Intensification of the Sintering of Iron Ores. (Intensifikatsiya protsessa spekaniya zheleznykh rud). 130-5-5/22

PERIODICAL: "Metallurg" (Metallurgist) 1957, No.5, p.10 (USSR).

ABSTRACT: Experiments in a 500 mm diameter sinter box with Kerch ores had shown that coke reduces the gas permeability of the charge and also hinders its pelletization. Further experiments were carried out, both with unfluxed and fluxed charges with two different methods of charging the mix into the mixer: 1) all materials being charged into the mixer drum simultaneously and 2) the ore being charged first without the coke with mixing and moistening for 5 mins followed by the addition of the required quantity of coke and further mixing for 3 mins. The mix consisted of the following (dry): 61.8% concentrate, 20.0% returns and 18.2% limestone; the mix contained 6.0% carbon, its moisture was 11.5% and the bed height was 300 mm. Results obtained by the two methods for the two types of mix are tabulated, data being given on the gas permeability before ignition and average value for the sintering, the maximal

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Intensification of the sintering of iron ores. (Cont.) 130-5-5/22

waste gas temperature, the vertical speed of sintering, the shrinkage of the charge, the yield of satisfactory sinter, the productivity and drum-test results. The figures show that the permeability of the charge, the vertical speed of sintering and the specific productivity appreciably increased when the second method was used: the speed by 20-21% and the productivity by 17-23% for unfluxed - fluxed sinter. The vertical speed of sintering is considered to have increased through improved permeability and also, perhaps, to the fact that the coke being on the surface of the pellets burns more readily. It is recommended that at plants with two stage mixing the coke should be added into the second mixer. There is 1 table.

Card 2/2

ASSOCIATION: Ukrainian Institute of Metals.(Ukrainskiy Institut Metallov.

AVAILABLE:

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Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 7 (USSR)

AUTHOR: Lebedev, A.Ye.

TITLE: Production of Fluxed Sinter from Kerch Ore Concentrate and the Influence Thereof on the Work of Powerful Blast Furnaces (Polucheniye oflyusovannogo aglomerata iz kontsentrata kerchenskikh rud i yego vliyaniye na rabotu moshchnykh domennykh pechey)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the In-t chernoy metallurgii AN UkrSSR (Institute for Ferrous Metals, Academy of Sciences, Ukrainian SSR), Dnepropetrovsk, 1958

ASSOCIATION: In-t chernoy metallurgii AN UkrSSR (Institute for Ferrous Metals, Academy of Sciences, Ukrainian SSR), Dnepropetrovsk

1. Sintered ores--Production 2. Blast furnaces--Performance

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25(1) PHASE I BOOK EXPLOITATION SOV/2132

Kiyev. Ukrainskiy Nauchno-issledovatel'skiy institut metallov

Tekhnologiya proizvodstva i svoystva chernykh metallov; sbornik (The Manufacture and Characteristics of Ferrous Metals; a collection of articles) Khar'kov, Khar'kovskiy gos.univ. im. A.M. Gor'kogo, 1958. 271 p. (Series: Its: Trudy, vyp. 4) Errata slip inserted. 1,000 copies printed.

Editorial Staff of this book: P.A. Aleksandrov, D.S. Kazarnovskiy, M.I. Kurmanov, N.F. Leve, V.P. Onopriyenko, V.A. Tikhovskiy, and Ya. A. Shneyerov; Ed.: S.S. Liberman; Tech. Ed.: K.O. Gurin

PURPOSE: The book is intended for the scientific personnel of institutes and for engineers and technicians of metallurgical enterprises and other branches of the industry.

COVERAGE: The collection of articles reviews the work carried on at the Institute of Metals on the technology of blast furnaces, open-

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hearth furnaces, and rolled stock production. It also deals with problems in metallography, heat treatment of ferrous metals and methods for their study. Particular attention is devoted to the preparation of charges and blast furnace practice with increased gas pressure, open-hearth production with oxygen blast and rolling of light profiles. No personalities are mentioned. References accompany each article.

TABLE OF CONTENTS:

BLAST FURNACE PRODUCTION

ROLLING

SCIENCE OF METALS AND HEAT METAL TREATMENT

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AVAILABLE: Library of Congress (TN 607.T4)

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9/21/59

SOV/137-59-1-272

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 34 (USSR)

AUTHORS: Lebedev, A. Ye., Lysenko, I. S.

TITLE: On the Problem of Replacing Coke Breeze Employed During Sintering of Iron Ores by Anthracite Culm (K voprosu o zamene koksika pri aglomeratsii zheleznykh rud antratsitovym shtybom)

PERIODICAL: Byul. nauchno-tekhn. inform. Ukr. n.-i. in-t metallov, 1958, Nr 5, pp 8-15

ABSTRACT: A description of the results of experiments dealing with the replacement of coke breeze employed in the sinter charge during sintering of concentrates of Kerch' ores by anthracite culm (AC). The initial sintering was conducted in a circular vat 400 mm high and 500 mm in diameter, which yielded up to 55 kg of sinter (S) in one batch, and was then continued directly in the continuous sintering machines of the Kamysh-Burunskaya sintering plant. The AC contained 16.1% cinder. Experiments demonstrated that the substitution of the AC does not impair the quality of the S obtained and is not responsible for the increased fuel consumption during the process. The productivity of sintering machines producing unfluxed S decreased by 4-5% when AC

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was employed. Compared with the standard technology of the production of fluxed S, the employment of the AC makes it possible to increase the productivity of the continuous sintering machines by 4-7% (according to laboratory data).

Ye. V.

ONOPRIYENKO, V.P., kand.tekhn.nauk; LEBEDEV, A.Ye., inzh.; PETRUKHIN, B.A., inzh.; KONOPLYA, M.V., tekhnik

Selecting the better size of shell-limestone lumps for sintering Kerch ore concentrates. Trudy Ukr.nauch.-issl.inst.met. no.5:53-63 '59. (MIRA 13:1)

1. Ukrainskiy institut metallov i Kamysh-Burunskiy zhelezorudnyy kombinat.
(Kerch Peninsula--Iron ores) (Sintering)

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E194/E255

AUTHORS: Deych, M.Ye., Doctor of Technical Sciences, Zaryankin, A. Ye., Candidate of Technical Sciences, Lebedev, A. Ye., Candidate of Technical Sciences and Frolov, L. B., Engineer

TITLE: An Instrument for Measuring the Torque, Speed and Power on High-Speed Turbines

PERIODICAL: Energomashinostroyeniye, 1960, No. 5, pp. 43-47

TEXT: In development work on blading very high speed experimental turbines are used, and the customary methods of measuring torque are often inapplicable. It is most convenient in such cases to measure torque in terms of the angular strain of the rotating shaft, but when the speed is of the order of 35 000 r.p.m. it is very difficult to take current from moving contacts on the rotor. An investigation of the operation of the various pickups carried out in the Moscow Power Engineering Institute showed that satisfactory results may be obtained with induction pickups, which are easily fitted to both experimental and regular production turbines. Impulses from these pickups can be used to measure both torque and speed. Two toothed magnetic

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An Instrument for Measuring the Torque, Speed and Power on High-Speed Turbines

discs are fitted to the rotating shaft and as they turn they induce impulses in the pickups. When there is no strain and the shafts are not twisted, the pickups are arranged with a phase displacement of half the pitch of one of the teeth in the disc. As the machine is loaded and the shaft twists the phase relationship between the two series of impulses alters and is measured. The instrument has two shaping circuits, each containing an amplifier, a limiter, a differentiating circuit and an impulse generator. This shaper circuit serves to amplify the pickup signal and to convert it into a signal of standard shape with a steep wave-front. There is a comparator device that measures the phase relationship between the impulses. The same pickups are used for speed measurement. The output of the shaping circuits is applied to a trigger, which is a switching device controlling the charging and discharging of capacitors. The mean charging current of the capacitors is proportional to the speed. The reliability of the measurements depends on the construction of the

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pickups. The pickup base is made of permalloy sheet 0.1 mm thick clamped between two diamagnetic holders; it carries a measuring coil of 100-500 turns. The output of the measuring coils has a saw-tooth wave-shape, the amplitude of which increases with the speed. A schematic circuit of the instrument is given and the various units, namely, the shaping unit, the torque measuring unit, the speed measuring unit and the power measuring unit are briefly described. An experimental rig for testing the device was set up. It consisted of a motor driving the shaft with toothed discs which in turn drove a generator, using special couplings. The arrangement was such that a calibration curve could be obtained of the instrument reading as a function of the pickup displacement, as plotted in Fig. 7. The graph shows a linear relationship between the instrument reading and the phase displacement. In measuring torque with an electronic dynamometer good results could be obtained by using torsion couplings, the design of which is briefly described. In preliminary tests the

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An Instrument for Measuring the Torque, Speed and Power on High-Speed Turbines

sensitivity was 100 microns displacement over the full scale, corresponding to a maximum angle of twist of 0.1°; however, the readings were not stable and depended on the speed of the disc. When the sensitivity was reduced to 0.5° of twist for full scale the readings were stable and independent of speeds. Good results can also be obtained using photo-electric pickups with the shafts rotating at any speed, including low speeds. In some cases the toothed wheels may be replaced by magnetic inserts of various kinds: the load on the flexible couplings of a turbine type BK-100 (VK-100) can be measured in this way. By using the instrument on power station turbines feeding into a common system it is possible to investigate transient processes in the machines when the system load changes, and to obtain satisfactory data about the operation of the governor system. There are 8 figures and 3 references; 1 Soviet and 2 non-Soviet.

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ONOPRIYENKO, V.P.; LEBEDEV, A. Ye.

Production of fluxed sinter from Kerch ore concentrates. Trudy Ukr. nauch.-issl. inst. met no.6:23-33 '60. (MIRA 14:3)
(Kerch Peninsula—Iron ores)
(Sintering)

ONOPRIYENKO, V.P., kand.tekhn.nauk; LEBEDEV, A.Ye., kand.tekhn.nauk; SOLDATKIN, A.I., kand.tekhn.nauk; LOZOVOY, P.R., inzh.; PETRUKHIN, B.A., inzh.; ARBUZOV, V.A., inzh.; Prinimali uchastiye: FURMAN, D.M.; KONOPLYA, M.V.; KOTOV, A.I.

Pilot-plant production of sinter with a basicity of 1.2 from Kerch ore concentrates. Biul. TSIICHM no.10:17-22 '60. (MIRA 15:4)

1. Ukrainskiy institut metallov (for Furman, Konoplya). 2. Kamyshburunskiy kombinat (for Kotov).
(Sintering) (Kerch Peninsula--Iron ores)

STARSHINOV, B.N., kand.tekhn.nauk; LEBEDEV, A.Ye., kand.tekhn.nauk; LUKASHOV, G.G., inzh.; SAVELOV, N.I., inzh.; TARASOV, D.A., inzh.; SUPRUN, I.Ye., inzh.; TIKHOMIROV, Ye.N., inzh.; SINITSKIY, V.D., inzh.; GORBANEV, Ya.S., inzh.; PRIKHOD'KO, L.D., inzh.

Operation of a blast furnace with a capacity of 1513 m^3. Biul. TSIICHM no.9:1-6 '60. (MIRA 15:4)
(Blast furnaces)

ONOPRIYENKO, V.P., kand.tekhn.nauk; LEBEDEV, A.Ye., kand.tekhn.nauk; FURMAN, D.M., inzh.

Production of fluxed sinter for metallurgical processes. Stal' 21 no.2:97-102 F '61. (MIRA 14:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov.
(Sintering)